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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/022,150      | 12/13/2001  | Paul F. Fewster      | GB 000180           | 4046             |

7590

10/07/2002

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EXAMINER

HO, ALLEN C

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 10/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/022,150

Applicant(s)

FEWSTER ET AL. 

Examiner

Allen C. Ho

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/30/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 24, 26, 28. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 38 (Page 8, line 25). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

4. The disclosure is objected to because of the following informalities:
  - (1) Specification lacks section headings.
  - (2) Page 8, line 17, "32" should be replaced by --34--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1, 3, 4 are rejected under 35 U.S.C. 102(e) as being anticipate by Schuster *et al.* (U. S. Patent No. 6,226,349 B1).

Schuster *et al.* disclosed an x-ray diffractometer, comprising: a sample stage (8) for mounting a sample (9), the sample stage being rotatable about an axis; a double pinhole collimator (14, 15) for directing x-ray radiation to the sample on the sample stage; a detector (29) for detecting x-rays diffracted by the sample; an analyzer crystal (30, 35) arranged between the sample stage and the detector to direct x-rays diffracted by the sample onto the detector, wherein the analyzer crystal and the detector are rotatable about an axis that is coaxial with the axis of rotation of the sample stage; a slit (31, 33) is arranged in front of the detector.

7. Claims 6 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Schuster *et al.* (U. S. Patent No. 6,226,349 B1).

Schuster *et al.* disclosed a method of x-ray diffractometry, comprising the steps of: directing x-rays (7) through a double pinhole collimator (14, 15) onto a sample (9) to be measured; diffracting the x-rays diffracted by the sample with an analyzer crystal (30, 35) onto a detector (29); rotating the sample and rotating the analyzer crystal and the detector about coaxial axes at a ratio of 1:2 (Fig. 8); measuring the diffracted x-ray intensity as a function of the angle of rotation of the sample and the angle of rotation of the analyzer crystal and detector (inherent, it is the function of a diffractometer).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster *et al.* (U.S. Patent No. 6,226,349 B1) as applied to claim 1 above, and further in view of Cullity (1978).

Schuster *et al.* disclosed an x-ray diffractometer, comprising a double pinhole collimator (14, 15) for directing x-ray radiation to the sample on the sample stage.

However, Schuster *et al.* did not teach that the size of the pinhole of the double pinhole collimator nearest the sample stage is adjustable for providing an x-ray spot on the sample of variable size.

Cullity taught that the x-ray spot on the sample is directly proportional to the size of the pinhole of the double pinhole collimator nearest the sample stage (Eq. 5-4).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the pinhole nearest the sample stage adjustable, since a person would be motivated provide an x-ray spot that matches with the size of the feature on the sample a person wishes to study, so that the data obtained would be from the feature exclusively without contamination from surrounding areas on the sample.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster *et al.* (U. S. Patent No. 6,226,349 B1) as applied to claim 1 above, and further in view of Fujiwara (U. S. Patent No. 5,878,106).

Schuster *et al.* disclosed an x-ray diffractometer, comprising: a sample stage (8) for mounting a sample (9), the sample stage being rotatable about an axis; an analyzer crystal (30, 35) arranged between the sample stage and the detector to direct x-rays diffracted by the sample onto the detector, wherein the analyzer crystal and the detector are rotatable about an axis that is coaxial with the axis of rotation of the sample stage, the sample stage and the detector and analyzer crystal are rotated with a ratio of rotation angles of substantially 1:2 (Fig. 8).

However, Schuster *et al.* did not teach that the x-ray diffractometer further comprises a drive for rotating the sample stage and the detector and analyzer crystal.

Fujiwara disclosed an x-ray diffractometer that comprises a drive (10, 17) for rotating the sample stage (5) and the detector (13) with a ratio of rotation angles of substantially 1:2 (22).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ a drive for rotating the sample stage and the detector and analyzer crystal, since a person would be motivated to automate the process of data acquisition.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster *et al.* (U. S. Patent No. 6,226,349 B1) as applied to claim 6 above, and further in view of Cullity (1978).

Schuster *et al.* disclosed a method of x-ray diffractometry, comprising the step of directing x-rays (7) through a double pinhole collimator (14, 15) onto a sample (9) to be measured.

However, Schuster *et al.* did not teach that the method further including varying the size of at least one pinhole in the double pinhole collimator.

Cullity taught that the x-ray spot on the sample is directly proportional to the size of the pinhole of the double pinhole collimator nearest the sample stage (Eq. 5-4).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the pinhole nearest the sample stage adjustable, since a person would be motivated provide an x-ray spot that matches with the size of the feature on the sample a person wishes to study, so that the data obtained would be from the feature exclusively without contamination from surrounding areas on the sample.

#### ***Allowable Subject Matter***

12. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

The allowable subject in claim 8 refers to a method of x-ray diffractometry according to claim 6, and further comprising the steps of: rotating the analyzer crystal and detector to a

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predetermined position; rotating the sample while keeping the analyzer crystal and detector in the predetermined position and measuring the x-rays reaching the detector as a function of angle of sample rotation; determining the sample rotation angle at which the measured x-rays are at a peak and rotating the sample to that angle.

### *Conclusion*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (703) 308-6189. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached at (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Allen C. Ho  
Examiner  
Art Unit 2882

ACH  
September 30, 2002

  
ROBERT H. KIM  
SUPERVISORY PATENT EXAMINER  
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